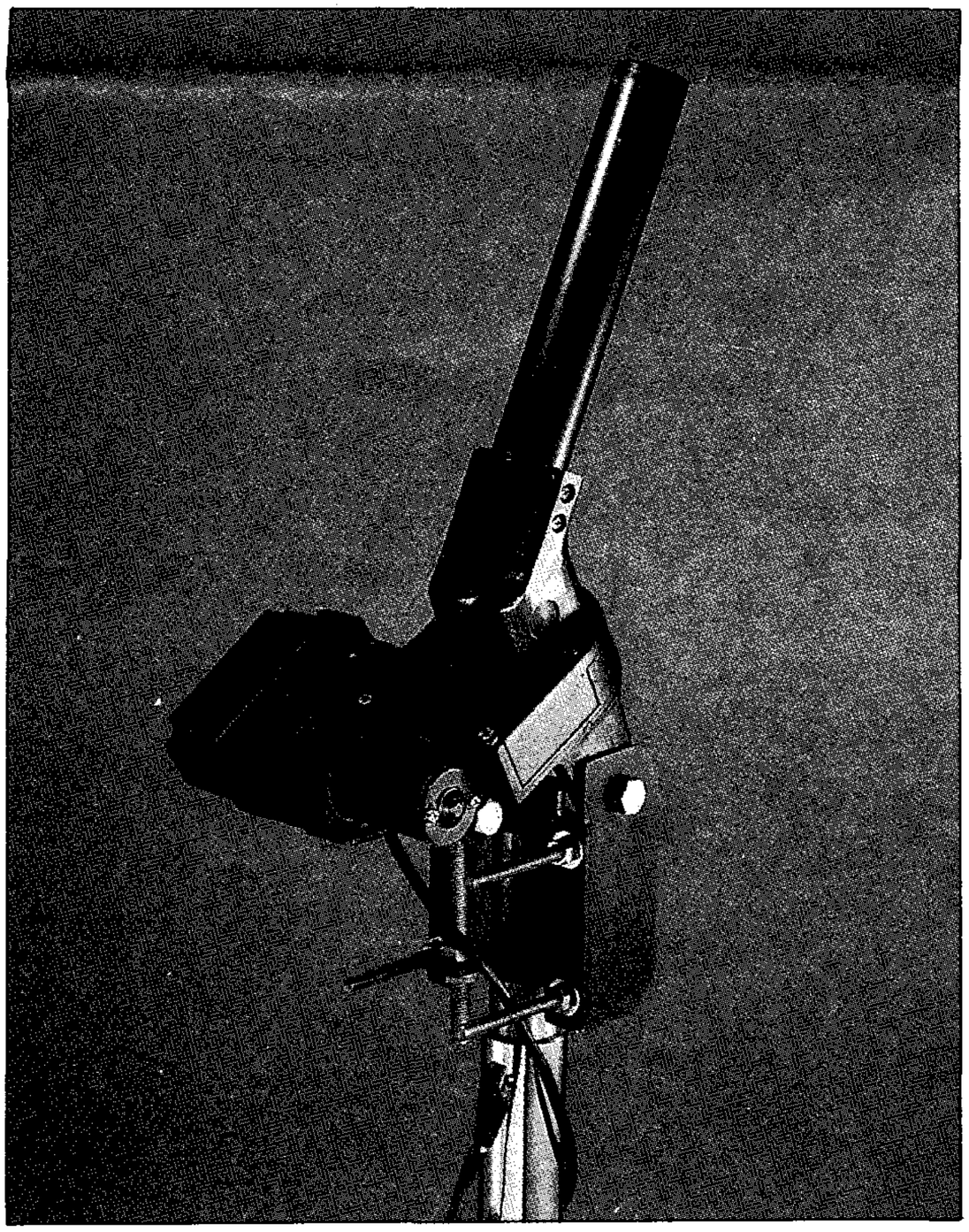
INSTALLATION MANUAL

HORIZON TO HORIZON MOUNT SMR-90U

- 36V DC MOTOR WITH REED SENSOR
- EASY TO UPGRADE FIXED OFFSET DISH TO MOTORIZED DISH
- MOUNTED WITH 50MM TO 75MM DIAMETER POLE



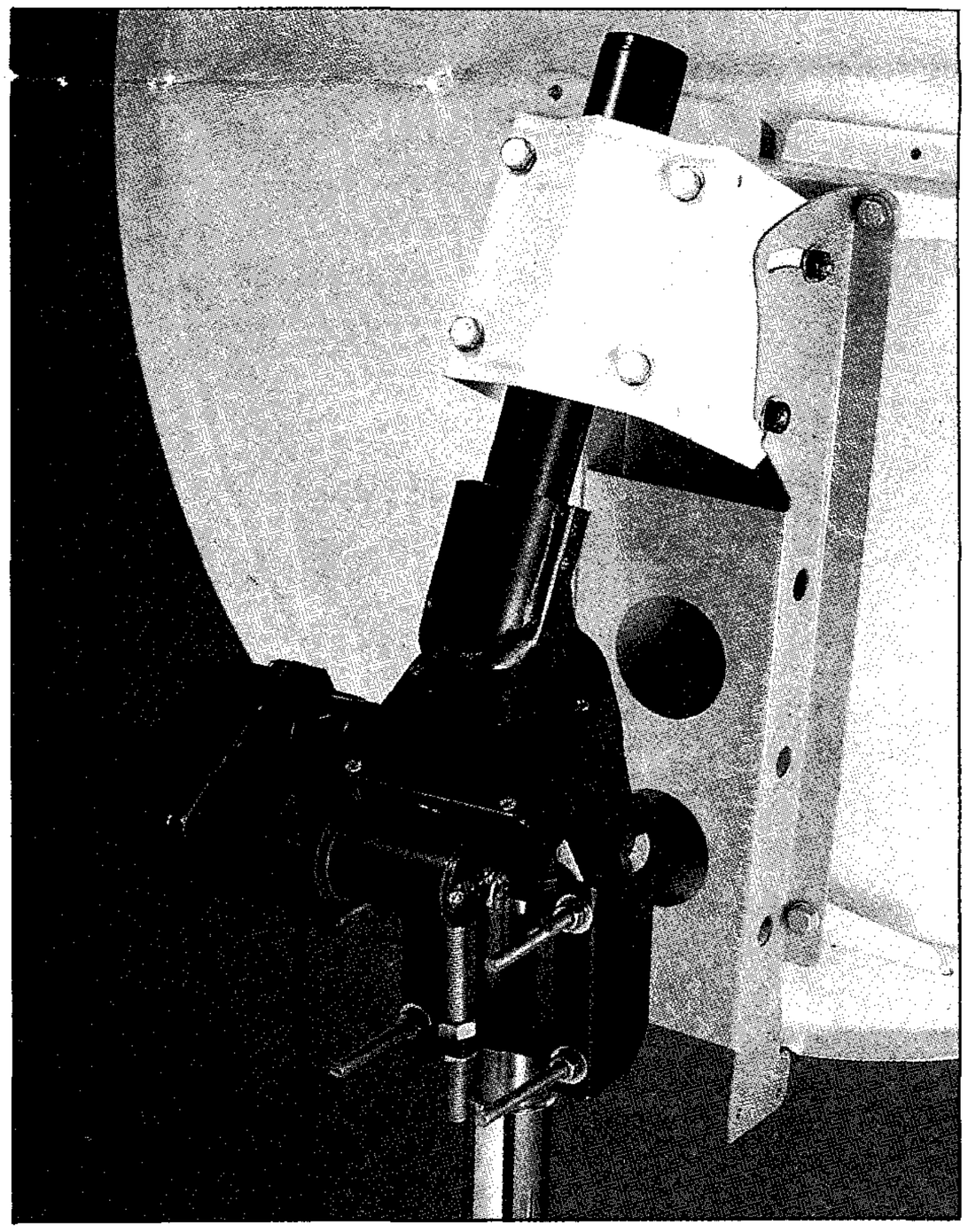


FIGURE 1

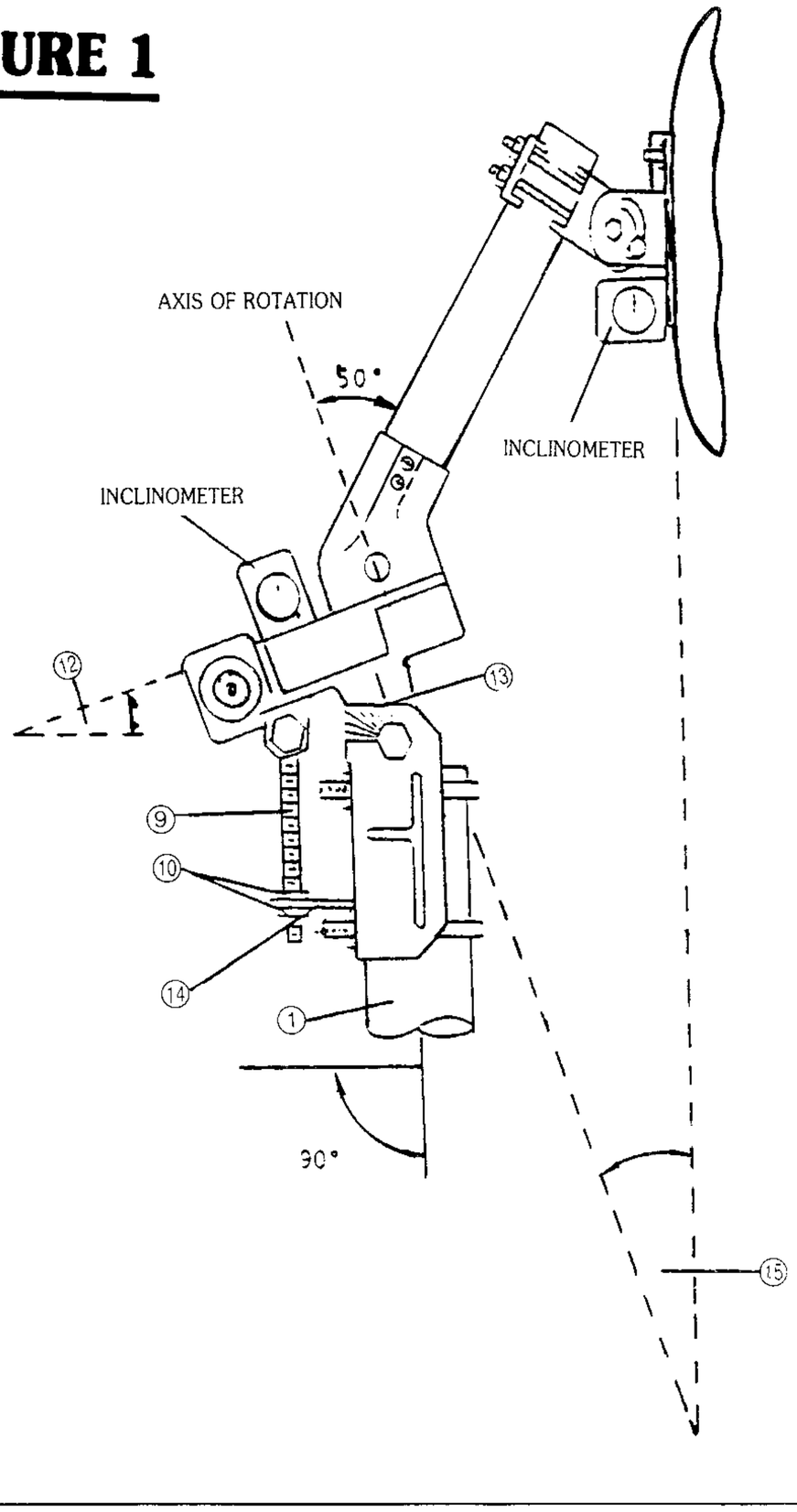
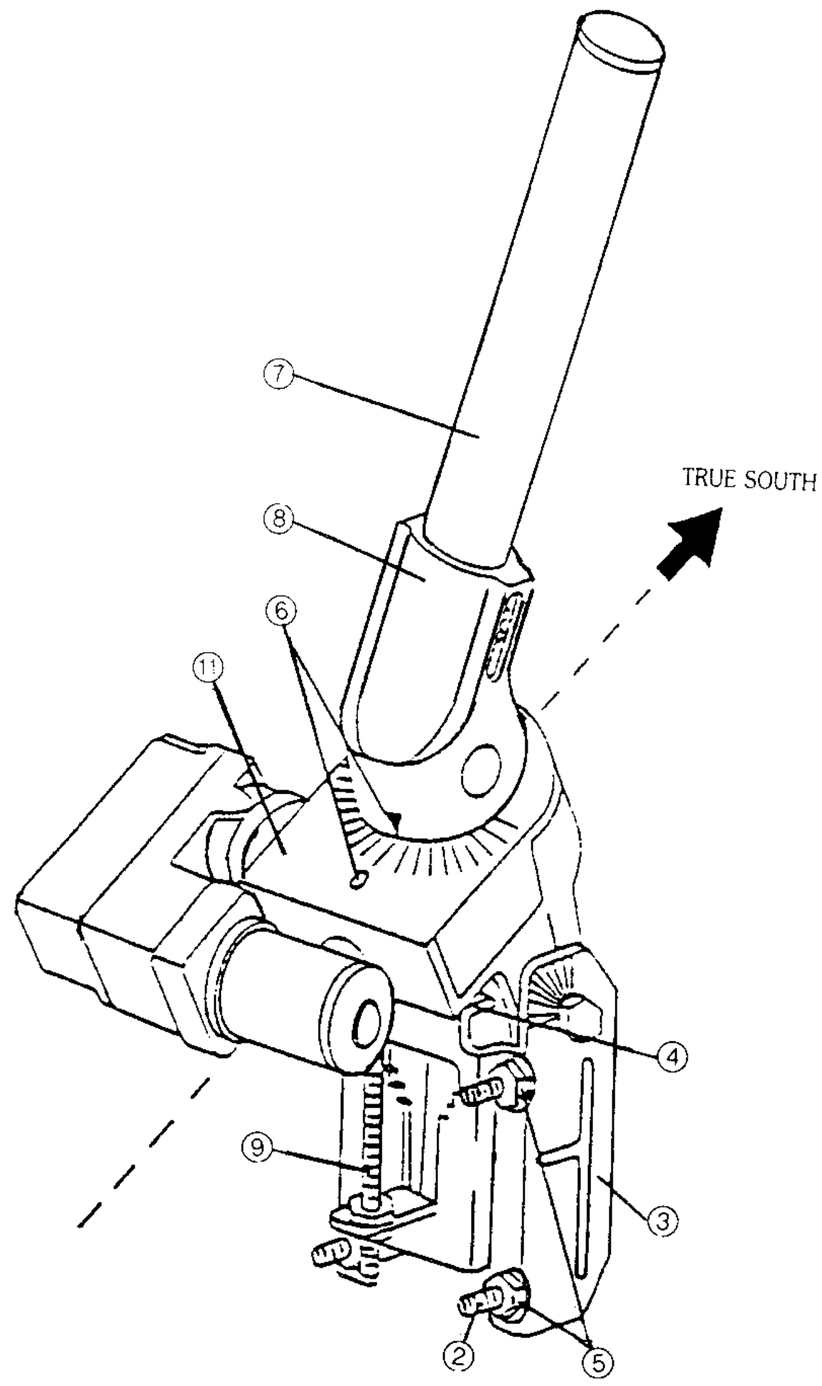


FIGURE 2



2.4 DELINATION

2.4.1 Declination angle setting must be made with the mount set at 0 degree azimuth.

2.4.2 Declination angle (15) is correlated with site latitude and depend on two conditions: The declination angle should be increased by adding the antenna offset angle (check with antenna supplier) to the declination angle referred in Table 2.

2.4.3 Place an inclinometer on the antenna and set the declination angle of the dish antenna.

2.5 CHECK OF THE POLAR ARC

To easily check if the Polar Arc is correctly set, proceed as follows:

a) Loosen off bolt assembly (16) (17) (18)

b) Loosen off taper pin (19) by using a #8 wrench to turn the nut (20) in clockwise direction and tighten it. The taper pin will then be drawn out.

c) The arm (8) can now simple rotated by hand to check that there is good reception from the extreme East and West satellites as well as the ones in between. If necessary adjust south alignment and/or declination and/or elevation until the best reception is achieved on all satellites.

d) Once alignment is complete, turn out the nut (20) to be flat with top of taper pin, then fit back taper pin into the arm by slight knock.
Assemble and tighten the bolt assembly (16) (17) (18) with screw driver.
Make sure the flat washer (21) be set between taper pin and nut. Turn the nut (20) in, but DO NOT too tighten it. Otherwise either taper pin thread or aluminum casting arm will be damaged. Cover back the rubber cap (22).

3. DOUBLE CHECK

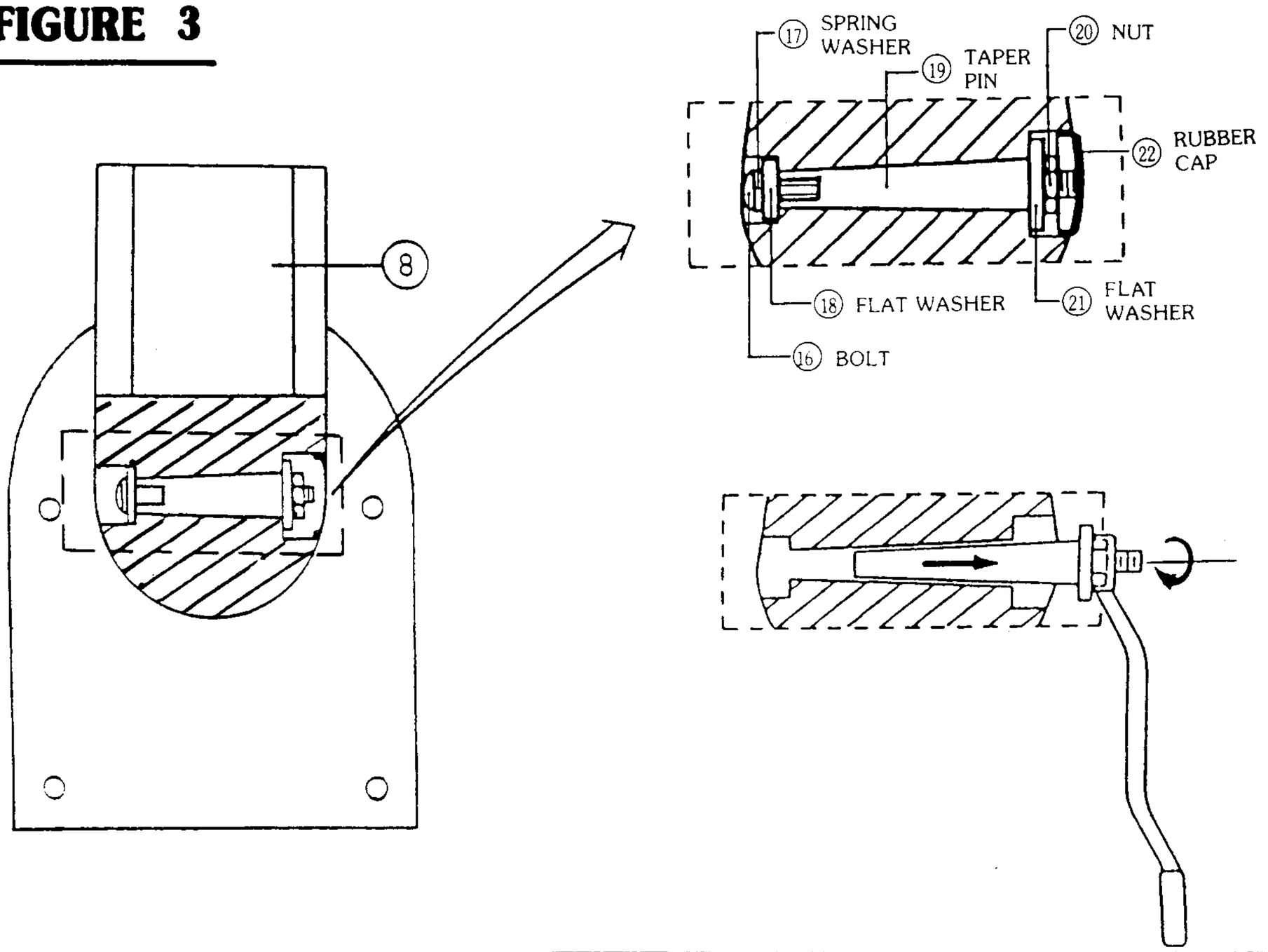
3.1 Check the two U-screws of the pole bracket be evenly fastened to the pole.

3.2 Check that the support bracket strut (4) is correctly fitted horizontally and is securely attached to the pole.

3.3 Make sure all screws are well tightened **EXCEPT for the taper pin nut (20).**

3.4 Make sure it has enough clearance so that the mount attached with antenna can move freely around 180 degrees without any obstacles.

FIGURE 3



4. MOTOR CONNECTION AND LIMIT SETTING

4.1 Motor Connection

4.1.1. Disconnect the main power of Receiver or Positioner before connecting to the mount.

4.1.2. Open the backcover of the motor gear box. Connect the four leads of the cable from the dish positioner to the terminal strap of the motor gear box. See the cable connection instruction inside the motor gear box backcover.

4.2 Limit Setting

This mount has factory preset limits which will not normally need to be altered.

However, it can be easily adjust the limits, refer to Figure 4 and proceed as follows:

4.2.1. East Limit

a) Remove the four screws holding the motor cover plate and take off the plate (Figure 4)

b) Using your dish positioner, move the mount to the East until it stops. Check that it was not stopped by the dish positioner electronic limit and if necessary cancel this setting.

c) To allow further Eastward movement, slightly pull the East limit adjust cam (23) upward together with the laminated west limit adjust cam (24) and turn clockwisely (i.e. away from the East limit button (26))

NOTE: Extreme care must be taken that the mount doesn't move to its extreme physical limits as this could damage the driving gear and void the warranty.

d) Check that your new limit setting is acceptable

e) Re-set the electronic limits on the dish positioner as necessary.

4.2.2. West Limit

Repeat the above instructions but pulling only the west limit adjust cam (24) upward and turn counter-clockwisely (away from the west limit button (25)) to obtain more westward movement.

4.3 Reed sensor Replacement

The plastic impregnated reed sensor (27) was plugged in the two PCB sockets (28). In the unlikely event of a reed sensor failure, replacement can be easily taken by pulling out the reed sensor and plugging in a replaced one (See Figure 4).

FIGURE 4

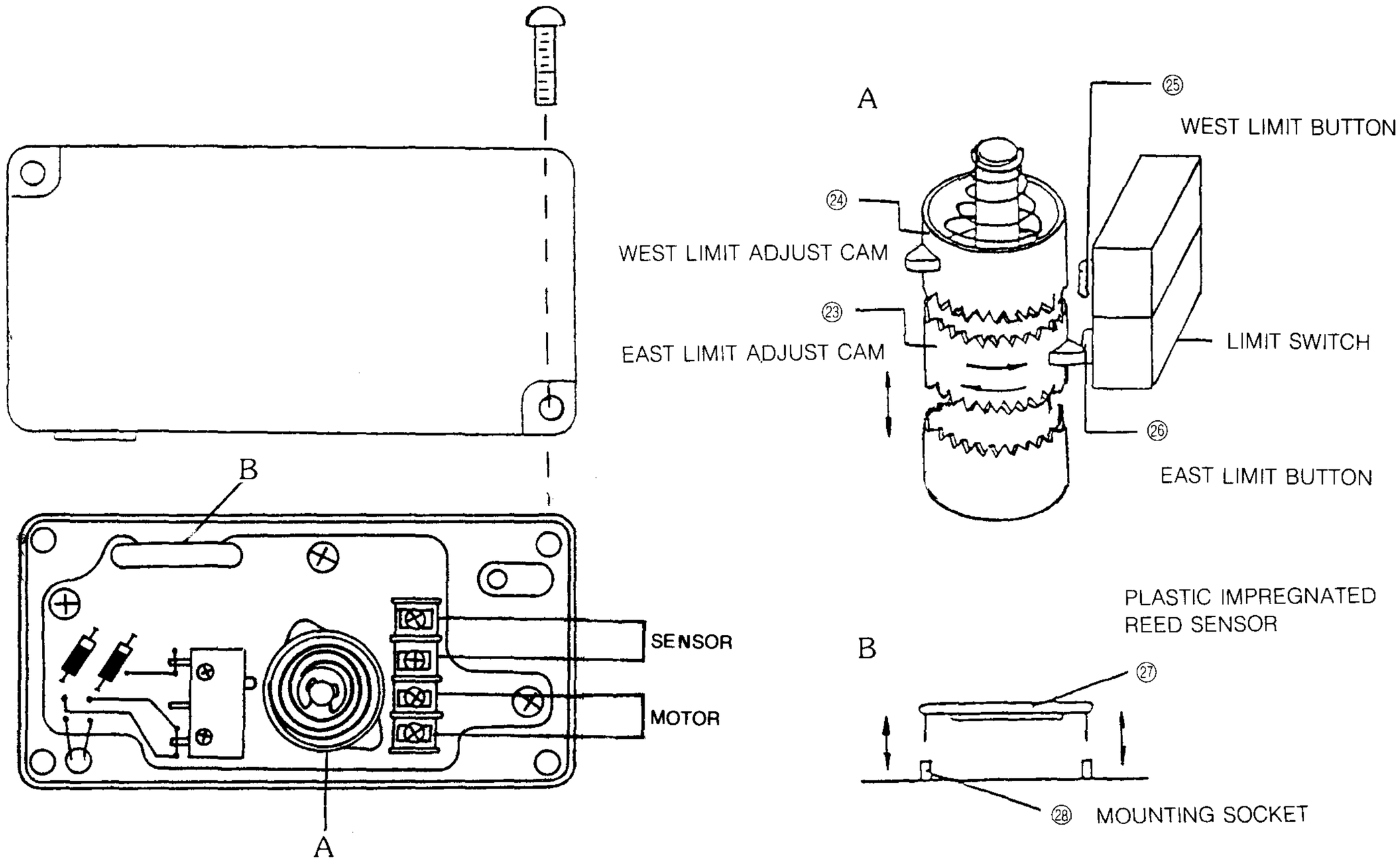

A
B
SENSOR
MOTOR
25
WEST LIMIT BUTTON
24
WEST LIMIT ADJUST CAM
23
EAST LIMIT ADJUST CAM
LIMIT SWITCH
26
EAST LIMIT BUTTON
PLASTIC IMPREGNATED
REED SENSOR
B
27
28
MOUNTING SOCKET

TABLE 2 DECLINATION ANGLE

LATITUDE	DECLINATION ANGLE
20	3.5
22	3.8
24	4.1
26	4.4
28	4.7
30	5.0
32	5.3
34	5.6
36	5.8
38	6.1
40	6.3
42	6.6
44	6.8
46	7.0
48	7.2
50	7.4
52	7.6
54	7.7
56	7.9
58	8.0
60	8.2
62	8.3
64	8.4
66	8.5
68	8.6
70	8.6

TABLE 3 ELEVATION ANGLE

SITE LONGITUDE (° EAST OR WEST)

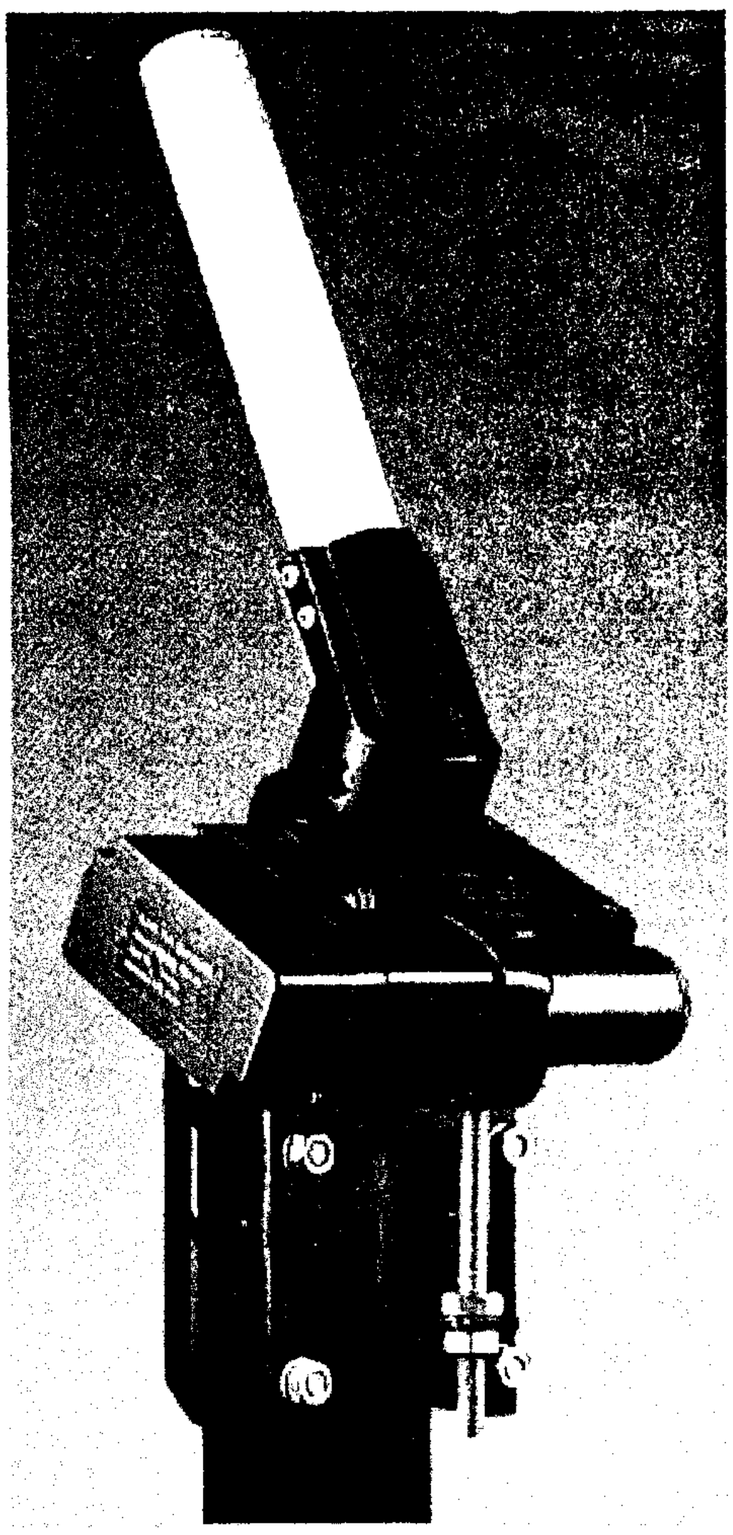
SITE LATITUDE (° NORTH)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.0	30.0
36.0	48.2	48.2	48.0	47.7	47.4	46.9	46.3	45.6	44.9	44.1	43.1	42.2	41.1	40.0	38.8	37.6
38.0	46.0	45.9	45.8	45.5	45.2	44.7	44.2	43.6	42.9	42.1	41.2	40.3	39.3	38.3	37.2	36.0
40.0	43.7	43.7	43.5	43.3	43.0	42.6	42.1	41.5	40.9	40.1	39.3	38.5	37.5	36.5	35.5	34.4
42.0	41.5	41.4	41.3	41.1	40.8	40.4	40.0	39.4	38.8	38.1	37.4	36.6	35.7	34.8	33.8	32.7
44.0	39.3	39.2	39.1	38.9	38.6	38.3	37.9	37.4	36.8	36.2	35.4	34.7	33.9	33.0	32.1	31.1
46.0	37.1	37.0	36.9	36.7	36.5	36.1	35.7	35.3	34.8	34.2	33.5	32.8	32.0	31.2	30.3	29.4
48.0	34.9	34.8	34.7	34.6	34.3	34.0	33.6	33.2	32.7	32.2	31.6	30.9	30.2	29.4	28.6	27.7
50.0	32.7	32.7	32.6	32.4	32.2	31.9	31.5	31.1	30.7	30.2	29.6	29.0	28.3	27.6	26.8	26.0
52.0	30.5	30.5	30.4	30.2	30.0	29.8	29.5	29.1	28.7	28.2	27.6	27.1	26.4	25.8	25.1	24.3
54.0	28.3	28.3	28.2	28.1	27.9	27.7	27.4	27.0	26.6	26.2	25.7	25.2	24.6	23.9	23.3	22.6
56.0	26.2	26.2	26.1	26.0	25.8	25.6	25.3	25.0	24.6	24.2	23.7	23.2	22.7	22.1	21.5	20.8
58.0	24.1	24.0	24.0	23.8	23.7	23.5	23.2	22.9	22.6	22.2	21.8	21.3	20.8	20.3	19.7	19.1
60.0	21.9	21.9	21.8	21.7	21.6	21.4	21.2	20.9	20.6	20.2	19.8	19.4	19.0	18.5	17.9	17.4
62.0	19.8	19.8	19.7	19.6	19.5	19.3	19.1	18.9	18.6	18.3	17.9	17.5	17.1	16.6	16.1	15.6
64.0	17.7	17.7	17.6	17.6	17.4	17.3	17.1	16.8	16.6	16.3	16.0	15.6	15.2	14.8	14.3	13.9
66.0	15.6	15.6	15.6	15.5	15.4	15.2	15.0	14.8	14.6	14.3	14.0	13.7	13.3	13.0	12.6	12.1

MUDEN

取扱説明書

HtoHポーラマウント
45cm~60cmアンテナ用

SMR-90U



目次

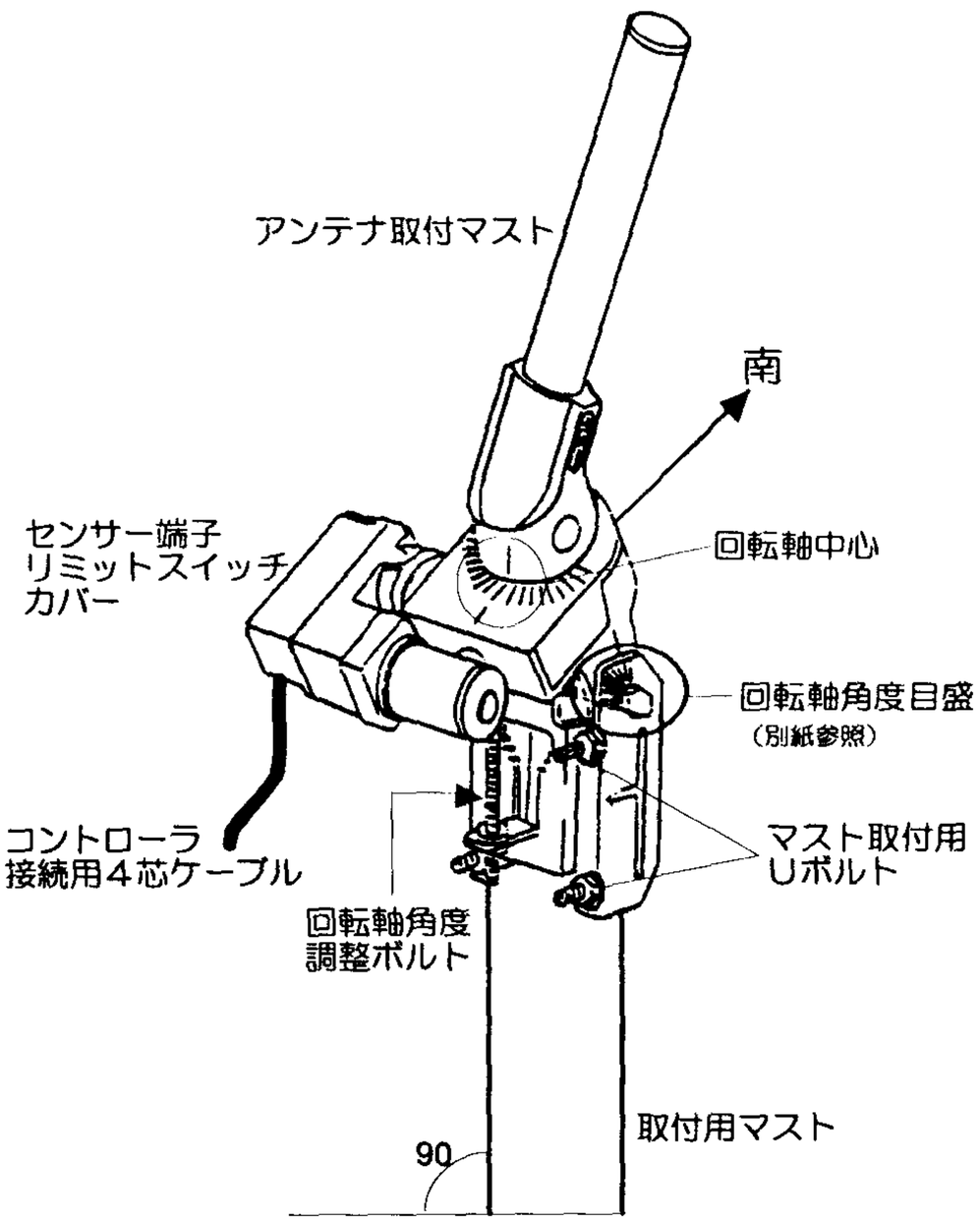
- 取付方法……1
- 接続・リミット調整……2
- 角度・方向調整……3
- 地区別角度表……4

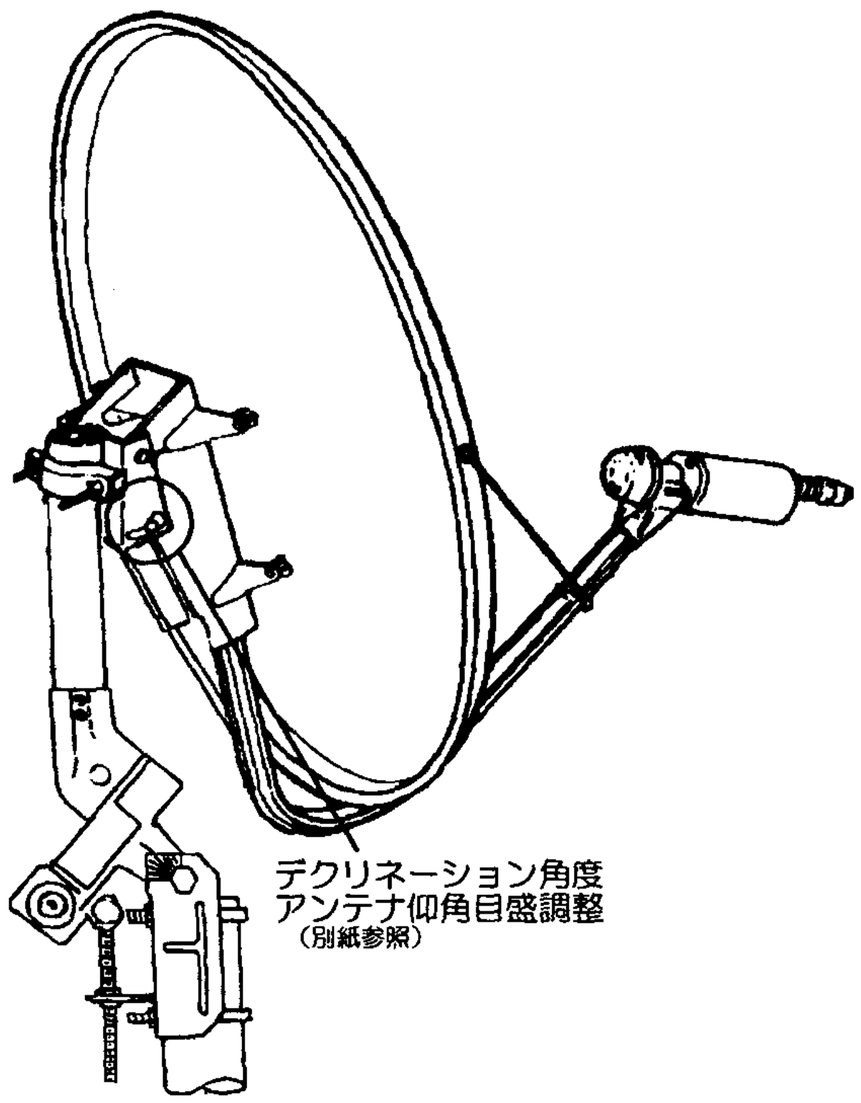
無電テレビ工業株式会社

取付方法

HtoH（地平線から地平線まで）ポーラマウント方式の回転アンテナシステムは、衛星の静止軌道にそってアンテナを回転させることができます。静止軌道上の全ての衛星を受信するには、回転軸を正確に北極星にあわせる必要があります。

■取付の方法





1. モーターマウントを取付けるマストを垂直に設置します。

2. モーターマウントを取付マストに垂直になるよう付属の U ボルトで取付けます。マスト径が細い場合は、上側を付属の短い U ボルトに取替えてナットが締るまでワッシャーを入れて下さい。

3. 回転軸の中心（回転角度目盛 0° ）を真南に向けて固定します。
   正確に合せるには北極星に回転軸の中心を合せて下さい。
   方位磁石で合せる場合は、方位磁石の南は真南より少し東になるので別紙の西偏角だけ西に合せて下さい。
   金属の近くでは磁気の影響がありますので、金属物から離れて使用して下さい。

4. 回転軸角度調整ボルトで各地区の角度にあうように回転軸角度を調節します。

5. 回転軸にアンテナ取付マストを付属のネジ 4 本で固定します。

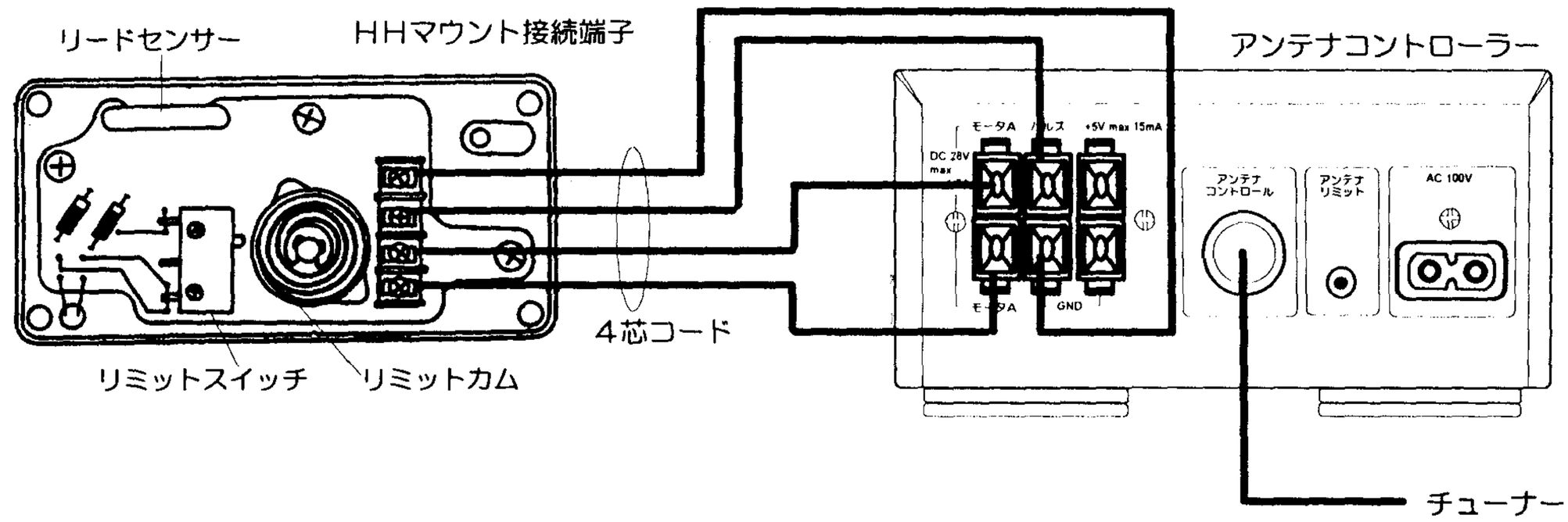
6. CS アンテナをアンテナ取付マストに固定します。
   アンテナ取付マストに対して左右にずれないよう取付けて下さい。真南に向けたときはアンテナは垂直になります。

7. アンテナの仰角目盛で各地のデクリネーション角度を調節します。
   正確に合せるには実際に各衛星を受信して微調整をする必要があります。

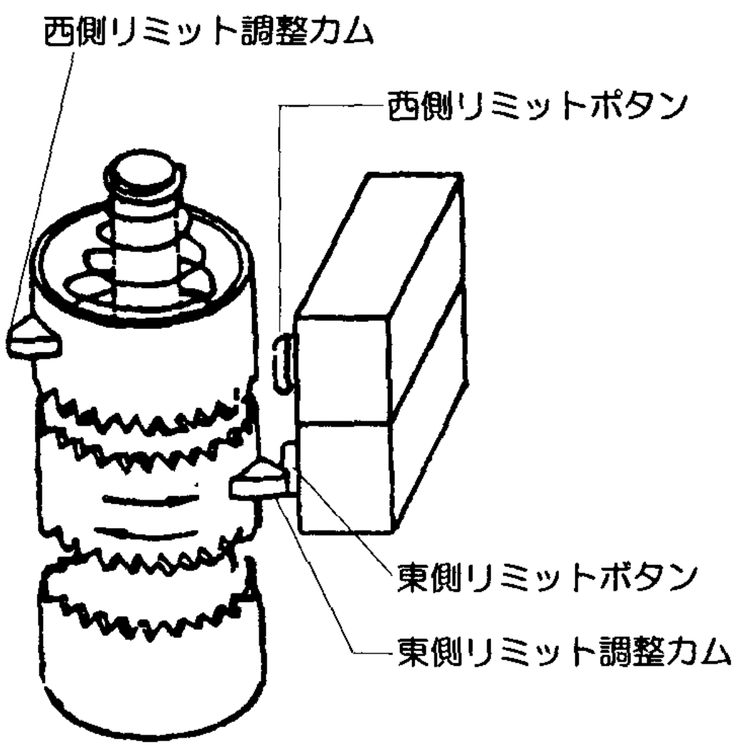
接続・リミット調整方法

本機とアンテナコントローラを 4 芯ケーブルで接続して下さい。

1 芯あたりの断面積が 0.5 ㎡あれば約 50m 延長できます。



1. リミットスイッチカバーを取外します。
2. モーター端子とアンテナコントローラーのモーターA・B と接続します。極性はありませんが、アンテナコントローラのリミット設定後に接続を入替えるとエラーになります。
3. センサー端子とアンテナコントローラーのパルス・GND と接続します。極性はありません。
4. 接続が完了したらアンテナコントローラーのリミット設定をして下さい。
   東西に回転させてアンテナが障害物に接触しない事を確認して下さい。
   回転軸角度目盛で左右に 50° 回転できれは見通し可能な衛星がすべて受信できます。
   回転角度に不具合がある場合はモーターのリミット調整をして下さい。



モーターリミットの調整方法

1．東側停止角度の調整をします。

コントローラを操作して回転軸を東側に回転させます。

■ 目的の方向の手前で停止する場合

① 東側リミット調整カムを時計方向に少し回します。

■ 目的の方向を通り過ぎる場合

② コントローラを操作して東側の目的角度で停止させます。

③ 東側リミット調整カムを反時計方向に回し、カチッと音がするところで止めます。

④ コントローラーで少し西側に戻し、再度東側に回転させ目的の角度で停止するのを確認します。ずれて停止する場合は②から繰返します。

2．西側停止角度の調整をします。

■ 目的の方向の手前で停止する場合

④ 東側リミット調整カムを動かないように押えて、西側調整リミットカムを反時計方向に少し回します。

■ 目的の方向を通り過ぎる場合

⑤ コントローラを操作して東側の目的角度で停止させます。

⑥ 東側リミット調整カムを反時計方向に回し、カチッと音がするところで止めます。

⑦ コントローラーで少し西側に戻し、再度東側に回転させ目的の角度で停止するのを確認します。

3. 東西に回転させて目的の角度で停止するのを確認して下さい。

角度・方向の調整方法

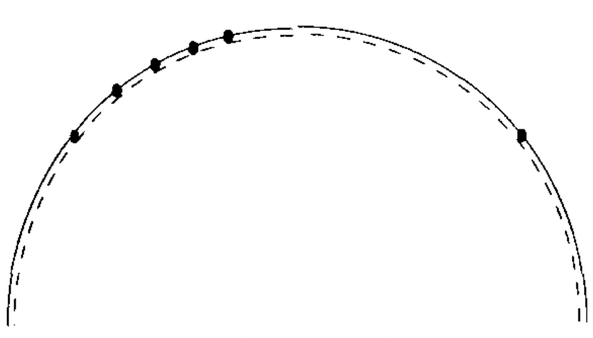
静止軌道上の全ての衛星に正確に向くには回転軸が真南に向いている事、回転軸角度、デクリネーション角度が正確にあっている事が重要です。

■調整方法

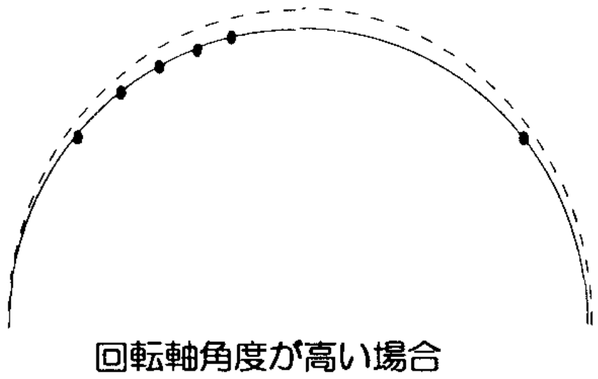
1. コンバーターとチューナーを接続して全ての衛星が受信できるように、チューナーの設定を行います。
   チューナーの設定は使用するチューナーの取扱説明書を参照して下さい。
2. アンテナコントローラーを操作して真南より少し東に回転させるとJCSAT 1.JCSAT 2.SCC A.SCC Bの順番で受信できます。
3. デクリネーション角度の微調整を行います。
   それぞれの衛星でデクリネーション角度があうよう調整します。
   角度が衛星により違うのは、回転軸の中心が真南に向いていないか回転軸角度があっていない場合です。
   回転軸角度はある程度正確に測れるので、再度調整します。
   回転軸を少し左右に回し、全ての衛星のデクリネーション角度が同じになるように微調整します。
   回転軸角度、回転軸方向の微調整を数回繰返して正確に向くように設定します。

調整箇所がすれている場合のアンテナの向きかた

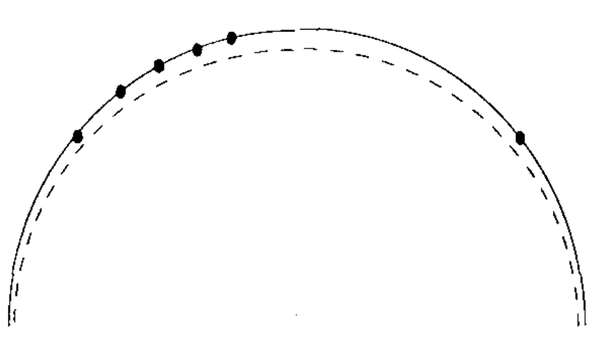
調整箇所がそれぞれずれた場合はすれかたが合成されます。



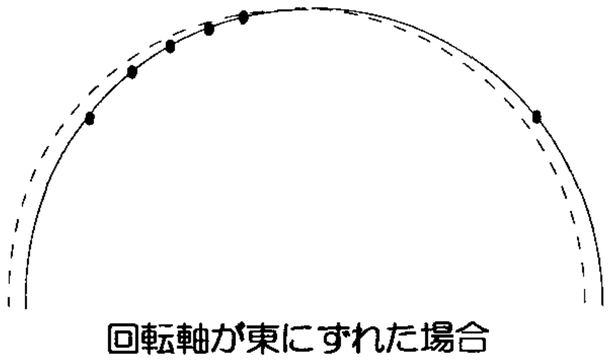
正確に調整した場合



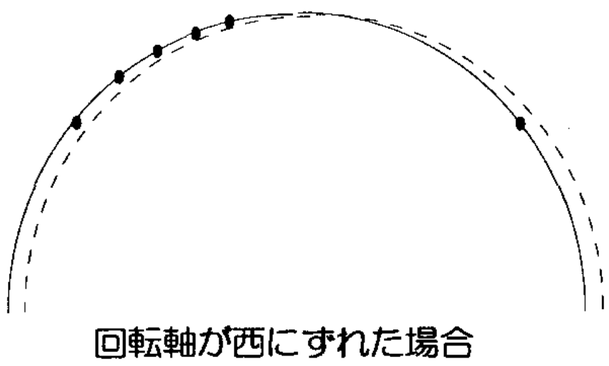
回転軸角度が高い場合



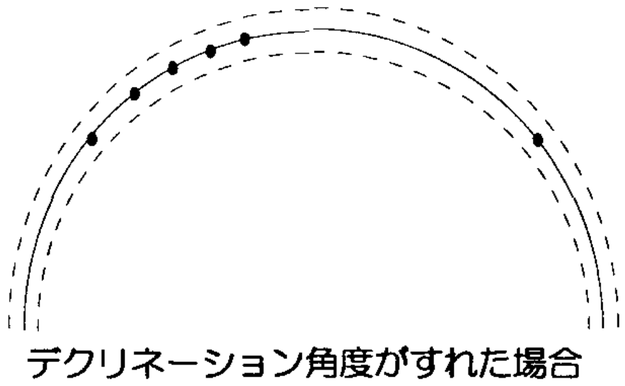
回転軸角度が低い場合



回転軸が東にずれた場合



回転軸が西にずれた場合

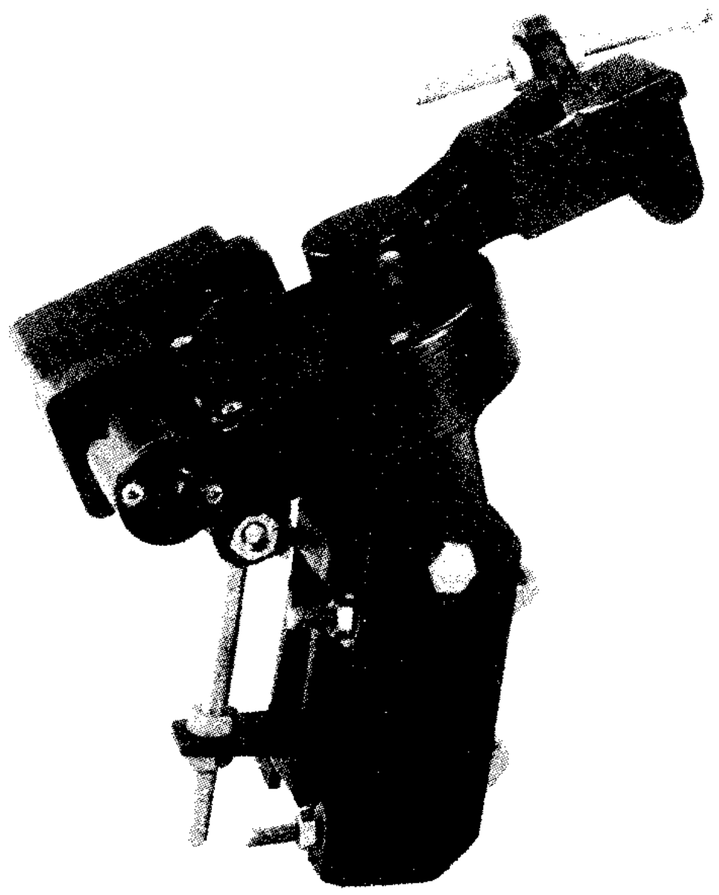


デクリネーション角度がすれた場合

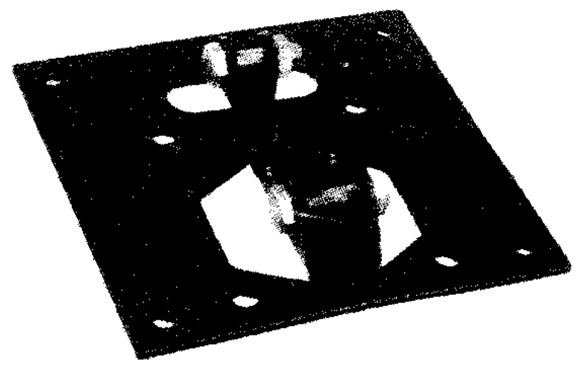
INSTALLATION MANUAL

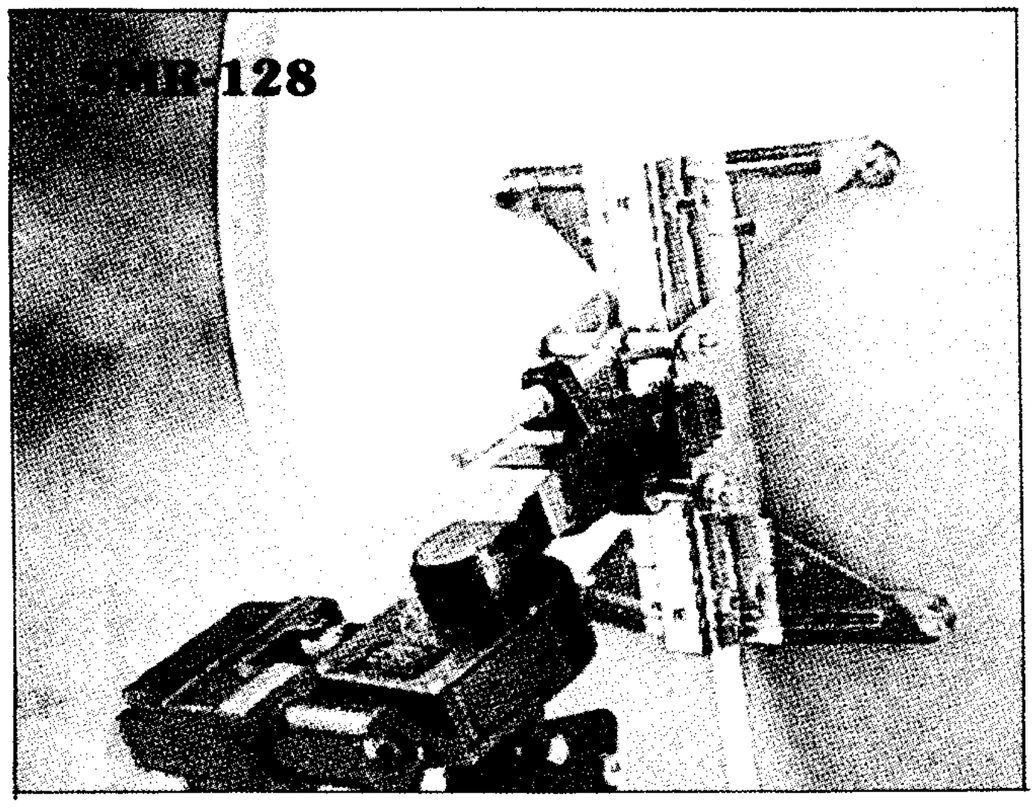
HORIZON TO HORIZON MOUNT SMR-128

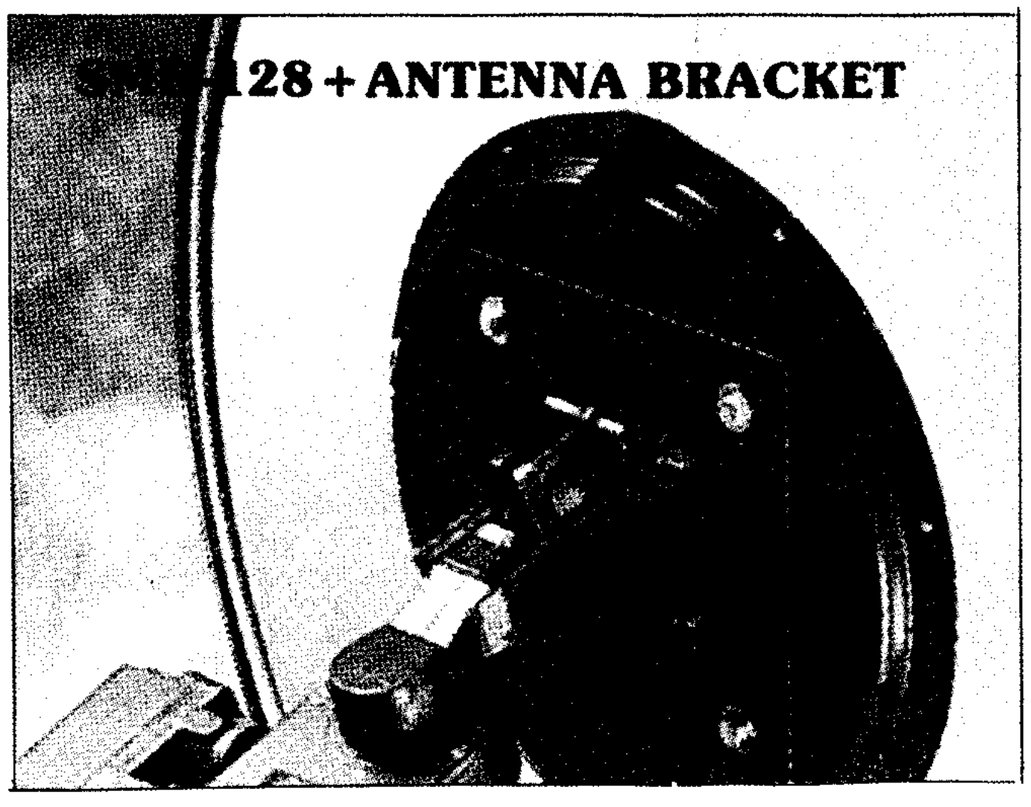
- 36V DC MOTOR WITH REED SENSOR
- FITS BOTH OFFSET AND PRIME FOCUS ANTENNAS
- MOUNTED WITH 38MM TO 76MM DIAMETER POLE
- ANTENNA BRACKET OPTIONAL



OPTIONAL
ANTENNA BRACKET







CE 1996

FIGURE 1

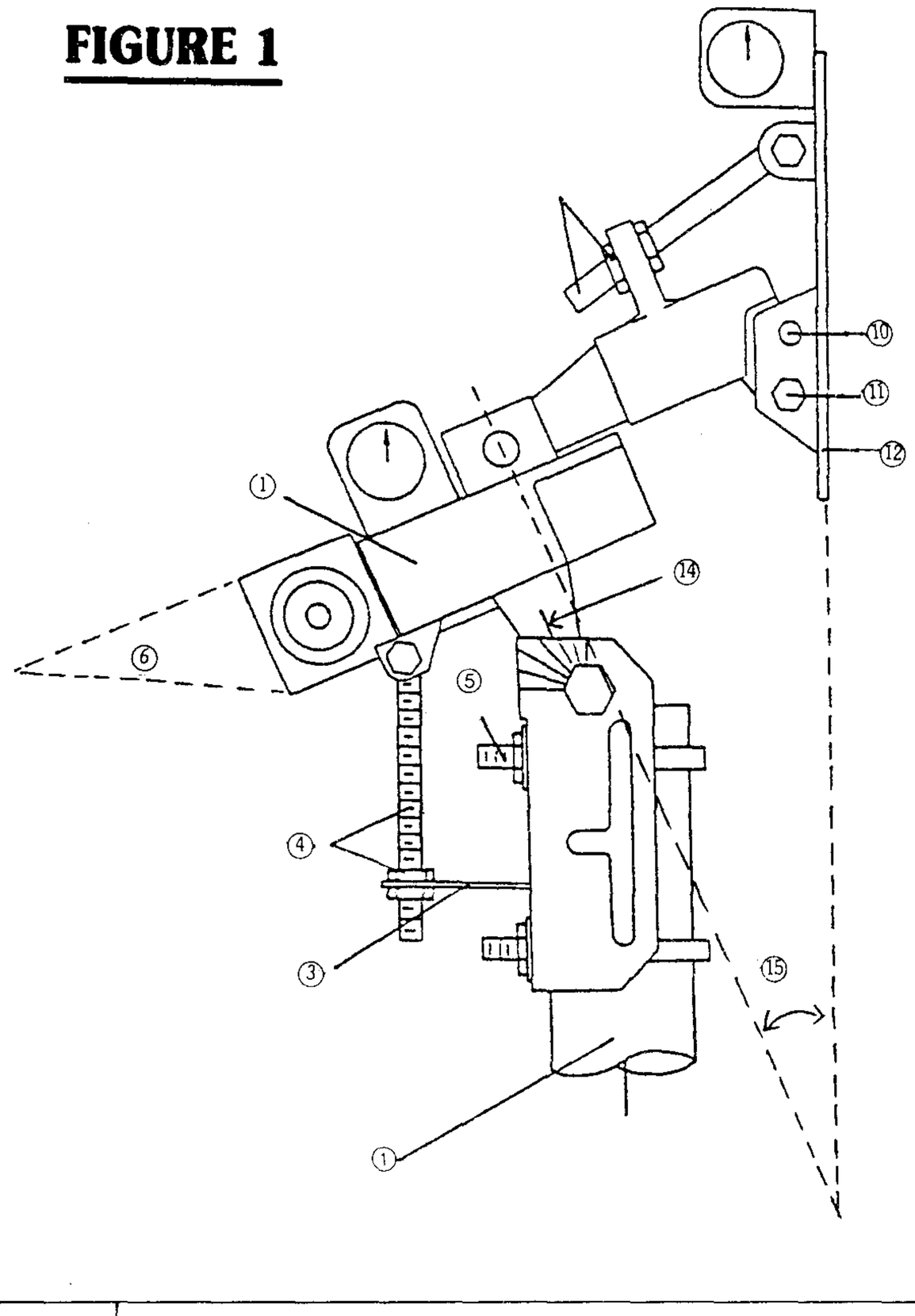
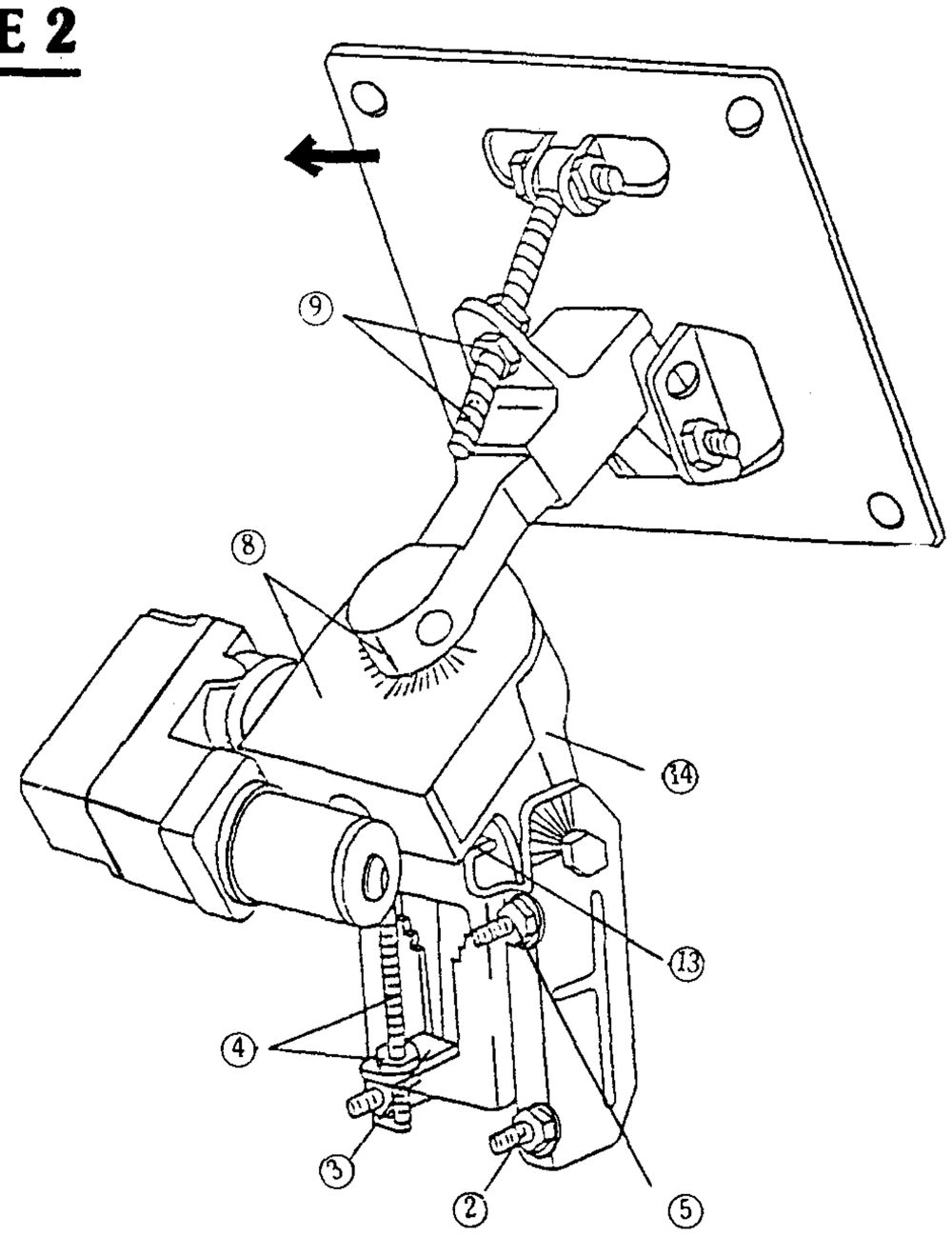


FIGURE 2



0. BEFORE YOU START

0.1 Please have following datum ready:

a) The location of true south from your site

b) Your site latitude

c) Your site longitude

0.2 Select a right site where the satellite signal will not be blocked by tree, house or any obstacles. (The satellites arc are always in the southward in the north hemisphere)

1. INSTALLING THE MOUNT

1.1 Ensure the mounting pole (1) is vertical. (Figure 1)

1.2 Assemble the two U-screws (2) in the hardware kit to the pole bracket fasteners (3). Slide the mount down to insert the mounting pole through the two U-screws of the pole bracket fasteners. Make sure the support bracket strut (4) is well sitting onto the top of the pole. Tighten the nuts (5) evenly, but do not fully tighten them.

2. ATTACHING THE ANTENNA TO THE MOUNT

2.1 Assemble the antenna bracket (12) to the rest of the mount

a) Connect the mount with the upper screw hole (10) on the antenna bracket if you use prime focus antenna.

b) Use lower screw hole (11) for offset focus antenna.

2.2 Attach the dish antenna to the antenna bracket

3. ALIGNMENT OF THE MOUNT

3.1 Azimuth

Read 5. MOTOR CONNECTION AND LIMIT SETTING to rotate the antenna bracket so that the mount azimuth set at 0 degree (8) is pointing due TRUE south. Please note, it is NOT magnetic south as indicated by a compass.

3.2 Elevation

Set the elevation by adjusting the screw/nut assembly (9) & (10). Please note that elevation screw must be always keep perpendicular to the supporter (5) of the pipe bracket. Place an inclinometer on the body of the mount (11) and set this angle (12) to the sum of the declination angle (Table 2) and the elevation angle (Table 3) determined by your site latitude and site longitude. The elevation scale (13) on the pipe bracket can be used as a reference for initial setting.

3.3 Declination

3.3.1 Declination angle setting must be made with the mount set at 0 degree azimuth.

3.3.2 Declination angle (15) is correlated with site latitude and depend on two conditions:

a) Prime focus dish used:
The declination angles is referred to Table 2.

b) Offset focus dish used:
The declination angles should be increased by adding the antenna offset angle (check with antenna supplier).

3.3.3. Place an inclinometer on the antenna bracket (12). Set the declination angle by adjusting the screw/nut assembly (9)

3.4 Check of the Polar Arc

To easily check if the Polar Arc is correctly set, proceed as follows:

a) Loosen off bolt assembly (16) (17) (18) (Figure 3).

b) Loosen off taper pin (19) by using a #8 wrench to turn the nut (20) in clockwise direction and tighten it. The taper pin will then be drawn out.

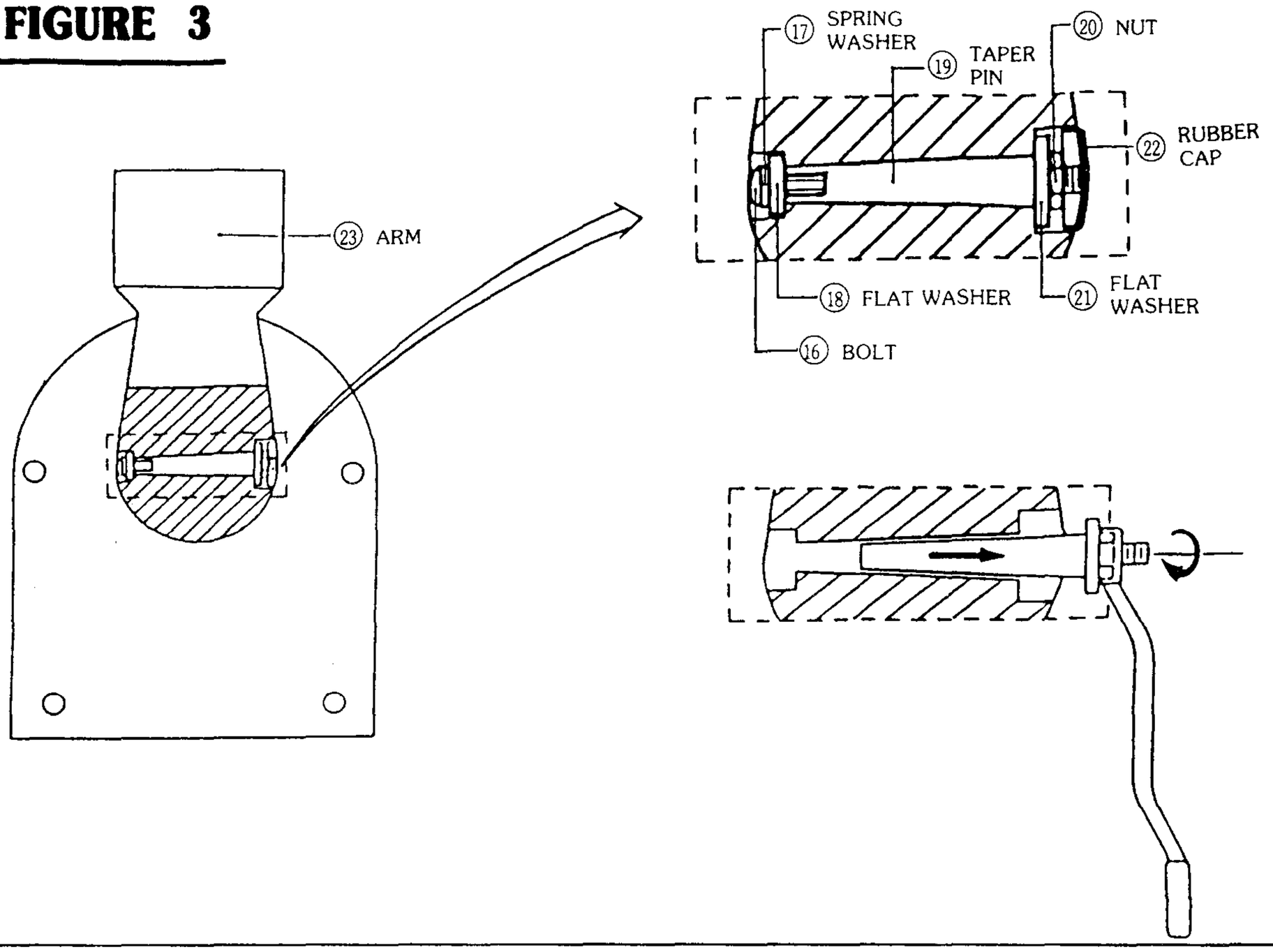
c) The arm (23) can now be simply rotated by hand to check that there is good reception from the extreme East and West satellites as well as the ones in between. If necessary adjust south alignment and/or declination and/or elevation until the best reception is achieved on all satellites.

d) Once alignment is complete, turn out the nut (20) to be flat with top of taper pin, then fit back taper pin into the arm by slight knock.

Assemble and tighten the bolt assembly (16) (17) (18) with screw driver.

Make sure the flat washer (21) be set between taper pin and nut. Turn the nut (20) in, but DO NOT too tighten it. (* Otherwise either taper pin thread or aluminum casting arm will be damaged) Cover back the rubber cap (22).

FIGURE 3



4. DOUBLE CHECK

4.1 Check the two U-screws of the pole bracket be evenly fastened to the pole.

4.2 Check that the support bracket strut (4) is correctly fitted horizontally and is securely attached to the pole.

4.3 Make sure all screws are well tightened EXCEPT for the taper pin nut (20).

4.4 Make sure it has rough clearance so that the mount attached with antenna can move freely arround 180 degrees without any obstacles.

5. MOTOR CONNECTION AND LIMIT SETTING

5.1 Motor Connection

5.1.1 Disconnect the main power of Receiver or Positioner before connecting the mount.

5.1.2. Open the backcover of the motor gear box. Connect the four leads of the cable from the dish positioner to the terminal strap of the motor gear box. See the cable connection instruction inside the motor gear box backcover.

5.2 Limit Setting

This mount has factory preset limits which will not normally need to be altered.

However, it can be easily adjust the limits, refer to (Figure 4) and proceed as follows:

5.2.1. East limit

a) Remove the four screws holding the motor cover plate and take off the plate. (Figure 4)

b) Using your dish positioner, move the mount to the East until it stops. Check that it was not stopped by the dish positioner electronic limit and if necessary cancel this setting.

c) To allow further Eastward movement, slightly pull the East limit adjust cam (23) upward together with the laminated west limit adjust cam (24)and turn clockwisely (i.e. away from the East limit button (26))

NOTE: Extreme care must be taken that the mount doesn't move to its extreme physical limits as this could damage the driving gear and void the warranty.

d) Check that your new limit setting is acceptable

e) Re-set the electronic limits on the dish positioner as necessary.

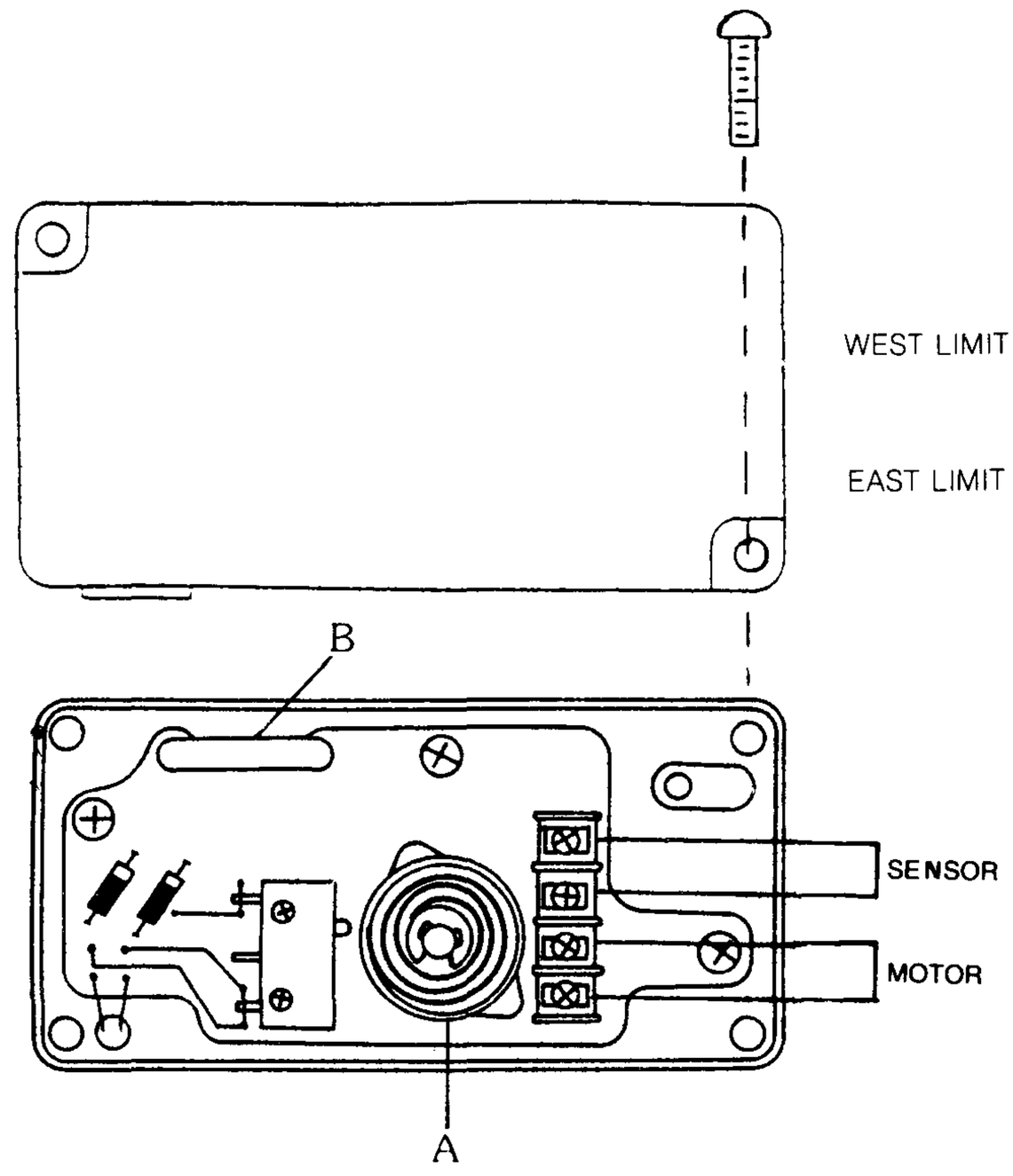
5.2.2. West Limit

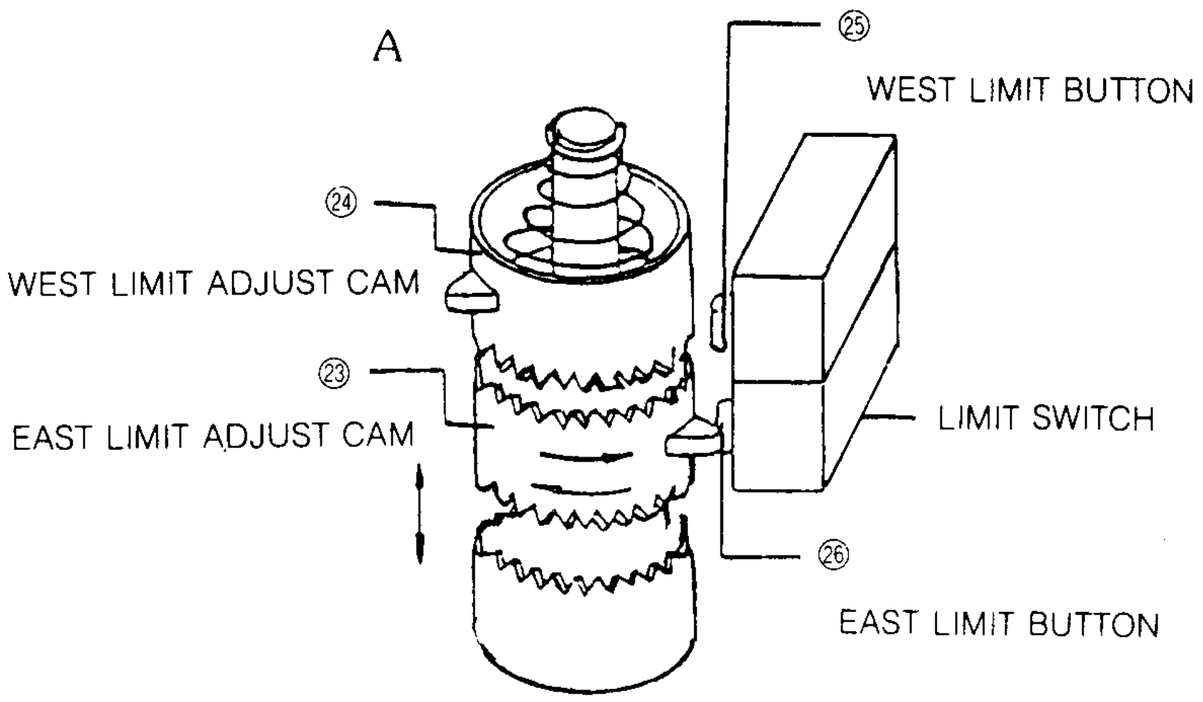
Repeat the above instructions but pulling only the west limit adjust cam (24) upward and turn counter-clockwisely (away from the west limit button (25)) to obtain more westward movement.

5.3 Reed Sensor Replacement

The plastic impregnated reed sensor(27)was plugged in the two PCB sockets (28). In the unlikely event of a reed sensor failure, replacement can be easily taken by pulling out the reed sensor and plugging in a replaced one (see Figure 4).

FIGURE 4


B
SENSOR
MOTOR
A


A
25
WEST LIMIT BUTTON
24
WEST LIMIT ADJUST CAM
23
EAST LIMIT ADJUST CAM
LIMIT SWITCH
26
EAST LIMIT BUTTON

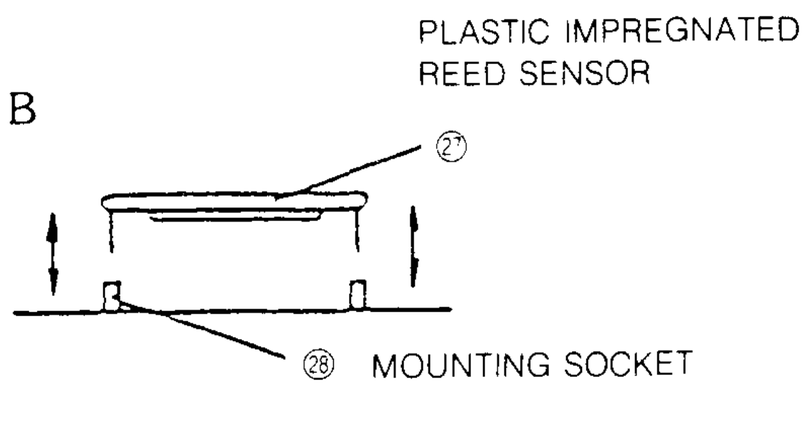

PLASTIC IMPREGNATED
REED SENSOR
B
27
28
MOUNTING SOCKET

TABLE 2 DECLINATION ANGLE

LATITUDE	DECLINATION ANGLE
20	3.5
22	3.8
24	4.1
26	4.4
28	4.7
30	5.0
32	5.3
34	5.6
36	5.8
38	6.1
40	6.3
42	6.6
44	6.8
46	7.0
48	7.2
50	7.4
52	7.6
54	7.7
56	7.9
58	8.0
60	8.2
62	8.3
64	8.4
66	8.5
68	8.6
70	8.6

TABLE 3 ELEVATION ANGLE

SITE LONGITUDE (° EAST OR WEST)

SITE LATITUDE (° NORTH)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.0	30.0
36.0	48.2	48.2	48.0	47.7	47.4	46.9	46.3	45.6	44.9	44.1	43.1	42.2	41.1	40.0	38.8	37.6
38.0	46.0	45.9	45.8	45.5	45.2	44.7	44.2	43.6	42.9	42.1	41.2	40.3	39.3	38.3	37.2	36.0
40.0	43.7	43.7	43.5	43.3	43.0	42.6	42.1	41.5	40.9	40.1	39.3	38.5	37.5	36.5	35.5	34.4
42.0	41.5	41.4	41.3	41.1	40.8	40.4	40.0	39.4	38.8	38.1	37.4	36.6	35.7	34.8	33.8	32.7
44.0	39.3	39.2	39.1	38.9	38.6	38.3	37.9	37.4	36.8	36.2	35.4	34.7	33.9	33.0	32.1	31.1
46.0	37.1	37.0	36.9	36.7	36.5	36.1	35.7	35.3	34.8	34.2	33.5	32.8	32.0	31.2	30.3	29.4
48.0	34.9	34.8	34.7	34.6	34.3	34.0	33.6	33.2	32.7	32.2	31.6	30.9	30.2	29.4	28.6	27.7
50.0	32.7	32.7	32.6	32.4	32.2	31.9	31.5	31.1	30.7	30.2	29.6	29.0	28.3	27.6	26.8	26.0
52.0	30.5	30.5	30.4	30.2	30.0	29.8	29.5	29.1	28.7	28.2	27.6	27.1	26.4	25.8	25.1	24.3
54.0	28.3	28.3	28.2	28.1	27.9	27.7	27.4	27.0	26.6	26.2	25.7	25.2	24.6	23.9	23.3	22.6
56.0	26.2	26.2	26.1	26.0	25.8	25.6	25.3	25.0	24.6	24.2	23.7	23.2	22.7	22.1	21.5	20.8
58.0	24.1	24.0	24.0	23.8	23.7	23.5	23.2	22.9	22.6	22.2	21.8	21.3	20.8	20.3	19.7	19.1
60.0	21.9	21.9	21.8	21.7	21.6	21.4	21.2	20.9	20.6	20.2	19.8	19.4	19.0	18.5	17.9	17.4
62.0	19.8	19.8	19.7	19.6	19.5	19.3	19.1	18.9	18.6	18.3	17.9	17.5	17.1	16.6	16.1	15.6
64.0	17.7	17.7	17.6	17.6	17.4	17.3	17.1	16.8	16.6	16.3	16.0	15.6	15.2	14.8	14.3	13.9
66.0	15.6	15.6	15.6	15.5	15.4	15.2	15.0	14.8	14.6	14.3	14.0	13.7	13.3	13.0	12.6	12.1